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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,910	11/27/2006	Nadim Khat	SC13051ET	2112

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EXAMINER
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CORRIELUS, JEAN B

ART UNIT	PAPER NUMBER
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2611

NOTIFICATION DATE	DELIVERY MODE
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09/24/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/596,910	<b>Applicant(s)</b> KHLAT ET AL.	
	<b>Examiner</b> Jean B. Corrielus	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-11, 14 15, 16 is/are rejected.
- 7) ☒ Claim(s) 5-6, 12-13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Objections*

1. Claims 1-14 are objected to because of the following informalities:

Claim 1, line 6, “the local oscillator means” reads on components (3, 19, 20 and 5). Hence, the “local oscillator means” is shown providing **two output signals** to satisfy the input requirement of **each mixer 4 and 6**. However, the claim recites “**at least one** local oscillator signal” is produced (i.e., either input to mixer 4 **or** input to mixer 6). If **only one** local oscillator signal is produced, as the claim language suggests, the input requirement of each mixer 4 and 6 will not be satisfied.

Claim 2, line 2, the “further local oscillator means” reads on (12, 13, and 25). Hence the further local oscillator means (12, 13 and 25), as shown in fig. 1 produces a **pair of further local oscillator signals** to satisfy the input requirement of mixers 21-24. However, the claim recites “**at least one** further oscillator signal” suggesting that “**one** further oscillator signal” can be produced. However, if **only one** further oscillator signal is produced, the input requirements of mixers 21-24 will not be satisfied. In addition, “further mixer means” corresponding to “21, 22, 23 and 24” require more than one oscillation signals.

Claim 3, the “oscillation signal” is understood to be either the input to mixer 4 or mixer 6. Such “oscillation signal” is not seen in fig. 1 as include “I and Q channel components”. Such signal is shown as either an I **or** a Q signal component.

As per claim 5, with respect to “**at least one** local oscillator signal” see claim 1.

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As per claim 8, line 5, the limitation “**at least one** local oscillator” reads on either component 3 or 19 (Fig. 1). However, the claim requires. The limitation “**at least one** filter” reads only on either filter 7 or 8. However it is noted that the claim requires both filters. The claim further recites that the local oscillator includes a “frequency alternation circuit”. However, as shown in the drawing, the local oscillator 3 or 19 is connected to the “frequency alternation circuit” 20, see fig. 1

As per claim 9, “**at least one** second oscillator” reads on 12 (fig. 1). However the output of the oscillator 12 is provided to circuit 25 as oppose to the mixer. (21-24). “**at least one** second mixer” reads on either 21-24. However, specification requires all the mixers (21-24) to be present. The limitation “**at least one** second filter” requires either filter 27 or 29 to be present. While the specification requires both filters 27 and 29 to be present.

As per claim 10, the claim recites “the local oscillator” comprises I and Q channel components. However, oscillator 3 or 19 is not disclosed to include an I and Q component.

As per claim 11, see claim 9.

As per claim 12, see claims 8 and 9. In addition, “the phase alternation circuit “shown as circuit 25 is not shown to be included in the “second local oscillator “12.

Please expand “I” and “Q”, as recited in the claims. See claim 3, for instance.

Note that any claim whose base claim is objected is likewise objected.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 7-9 and 14-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Henriksson US Patent Application Publication No. 6,829,469.

As per claim 1, Henriksson teaches an apparatus fig. 1 comprising antenna means (Note Fig. 1) for receiving a slot-based radio signal note comprising successive frames each comprising a set of reception time slots (note col. 3, lines 14-18, Henriksson teaches that the signal is received in bursts, as know in the art, a burst is formatted in frames and further in col. 3, lines 37-45, Henriksson teaches a plurality of time slots are used) ; input means (Note for instance the amplifier in fig. 1) responsive to a signal from said antenna means (fig. 1) for producing an input signal; local oscillator means (note the two oscillators coupled to the switch in fig. 1) for producing at least one local oscillator signal having a local oscillator frequency (note input to the first mixer fig. 1) ; a mixer (note the mixer connected to the switch in fig. 1) for mixing said input signal with said local oscillator signal and producing an IF signal (note col. 3, lines 30-34); and

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filter means (note the filter connected between the two mixers in fig. 1) responsive to said IF signal (output of the first mixer in fig. 1) for selectively passing frequencies within a low IF range and rejecting frequencies outside said low IF range so as to produce a filtered signal (Note that the function of the Filter is to reject frequencies outside a specified band) characterized in that said local oscillator means (note the two oscillators coupled to the switch in fig. 1) includes a switch (note fig. 1) (frequency alternation means) for causing said local oscillator frequency to alternate relative to said carrier frequency a plurality of times during said reception time slots of each of said frames between first and second values (note col. 3, lines 37-45, i.e. first time slot and second time slot) .It is noted that there is no structural difference between the claimed invention and the prior art .Therefore, it is the examiner position that the prior art structure is capable of alternating between a first value and a second value one of which is greater and the other smaller than the desired carrier frequency of the input signal.

As per claim 2, Henriksson further teaches a further local oscillator means (note the third oscillator in fig. 3) for producing at least one further local oscillator signal having a further local oscillator frequency; further second mixer means ( note the second mixer in fig. 1) for mixing said filtered signal with said further local oscillator signal and producing a baseband signal (note as known in the art a conversion of an IF signal produces a baseband signal); and filter means (note the third filter in fig. 1) responsive to said baseband signal for selectively passing frequencies within a baseband frequency range and rejecting frequencies outside said baseband range

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(note the function of the filter is to pass a desired band and to reject undesired band of frequencies).

As per claim 7, Henriksson teaches that the switch (alternation means) alternates between first and second values at each first time slot and a second time slot of the received signal.(see fig. 1 and col. 3, lines 37-45.

As per claim 8, see claim 1.

As per claim 9, see claim 2.

As per claim 14, see claim 7.

As per claims 15 and 16, because there is no structural difference between the prior art structure and the invention as recited in claims 15 and 16, it is the examiner position that the prior art structure is **capable** to alternate the oscillator frequency between first and second values in which one is greater and the other one is smaller than said carrier by the same frequency difference.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-4 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henriksson US Patent No.6,829,469 in view of Shi et al US patent No. 7,136,431.

As per claim 3, as applied to claim 1 above, Henriksson teaches every feature of the claimed invention but does not explicitly teach the limitations of "wherein said local

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oscillator comprises 'I' and 'Q' channels for producing respectively I and Q components of said local oscillator signal in phase quadrature, said mixer includes I and Q mixer channels for mixing said input signal with said I and Q components of said local oscillator signal and producing respectively I and Q components of said IF signal, and said filter includes I and Q filter channels for producing I and Q components of said filtered signal, respectively.” Shi et al teaches an apparatus fig. 7 comprising an oscillator 81 comprises 'I' and 'Q' channels for producing respectively I and Q components of said local oscillator signal (note fig. 7, 81), said mixer includes I and Q mixer channels 104 and 108 for mixing said input signal with said I and Q components of said local oscillator signal and producing respectively I and Q components of said IF signal note fig. 7, and a filter 114 and 116 comprising I and Q filter channels note fig. 7 for producing I and Q components, respectively. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Henriksson so as to allow the system to be used in combination with multi-value modulation schemes such as QAM modulation scheme so as to enhance system performance because higher level modulations are known to perform better than lower modulation schemes.

As per claim 4, as applied to claim 1 above, Henriksson teaches every feature of the claimed invention but does not explicitly teach the limitations of “a second local oscillator for producing I and Q further local oscillator signal components having a further local oscillator frequency; a second mixer including I and Q further mixer channels for mixing said filtered signal with said I and Q further local oscillator signal components and producing I and Q components of said baseband signal; and an I and



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Q filter responsive to said I and Q components of said baseband signal for selectively passing frequencies within a baseband frequency range and rejecting frequencies outside said baseband range so as to produce I and Q components of said baseband signal, respectively.” Shi et al teaches a second local oscillator 140 for producing I and Q further local oscillator signal components having a further local oscillator frequency note fig. 7 output of 140; a second mixer including I and Q further mixer channels 142 and 144 for mixing said filtered signal with said I and Q further local oscillator signal components and producing I and Q components of said baseband signal note fig. 7 output of 142; and an I and Q filter 146 and 148 responsive to said I and Q components of said baseband signal for selectively passing frequencies within a baseband frequency range and rejecting frequencies outside said baseband range so as to produce I and Q components of said baseband signal, respectively. Note fig. 7 output of 146 and 148. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Henriksson and the motivation to do so would have been the same as provided above with respect to claim 3.

As per claim 10, see claim 3.

As per claim 11, see claim 4.

***Allowable Subject Matter***

6. Claims 5-6 and 12-13 would be allowable, if amended to overcome the objection set forth above.

***Response to Arguments***

7. Applicant's arguments filed 8/12/09 have been fully considered but they are not persuasive. It is asserted that Henriksson does not teach a "structure ... capable of alternating between a first value and a second value one of which is greater and the other smaller than the desired carrier frequency of the input signal" as stated in the Office Action. In the passage at col. 3, lines 37-45 of Henriksson referred to in the Office Action, the structure shown in Fig. 1 functions under conditions of frequency hopping. One of the local oscillators ('LO') supplies a LO frequency suitable for the current input carrier frequency while the other LO is changing its frequency to correspond to an input carrier frequency that will be used in a future time-slot. There is no disclosure that the LO frequencies could alternate relative to the carrier frequency between values one of which is greater and the other smaller than the carrier frequency (emphasis added), as specified in present claim 1. Instead of alternating relative to the input carrier frequency, the LO frequency utilized remains constant relative to the current carrier frequency and only changes when the current input carrier frequency changes, then again remaining constant at the new value. There is no alternation between values one of which is greater and the other smaller than a carrier frequency, as recited in claim 1. It is submitted that Henriksson does not disclose the structure and features recited in claim 1. Examiner disagrees. Per MPEP 2114, reproduced below for ease of convenience, apparatus claim must differentiate from the prior art in term of structure rather than function. Since there is no difference between the prior art structure and the invention

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as claimed, it is the examiner's position that the prior art structure is capable of performing the claimed limitations as set forth in the above rejection.

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**2114 [R-1] Apparatus and Article Claims — Functional Language**

For a discussion of case law which provides guidance in interpreting the functional portion of means-plus-function limitations see MPEP § 2181 - § 2186.

**APPARATUS CLAIMS MUST BE STRUCTUR-ALLY DISTINGUISHABLE FROM THE PRIOR ART**

>While features of an apparatus may be recited either structurally or functionally, claims< directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. >*In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971);< *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). “[A]pparatus claims cover what a device *is*, not what a device *does*.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original).

**MANNER OF OPERATING THE DEVICE DOES NOT DIFFERENTIATE APPARATUS CLAIM FROM THE PRIOR ART**

A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) (The preamble of claim 1 recited that the apparatus was “for mixing flowing developer material” and the body of the claim recited “means for mixing ..., said mixing means being stationary and completely submerged in the developer material”. The claim was rejected over a reference which taught all the structural limitations of the claim for the intended use of mixing flowing developer. However, the mixer was only partially submerged in the developer material. The Board held that the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected.).

**A PRIOR ART DEVICE CAN PERFORM ALL THE FUNCTIONS OF THE APPARATUS CLAIM AND STILL NOT ANTICIPATE THE CLAIM**

Even if the prior art device performs all the functions recited in the claim, the prior art cannot anticipate the claim if there is any structural difference. It should be noted,

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020. The examiner can normally be reached on Monday-Thursday from 9:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jean B Corrielus/  
Primary Examiner, Art Unit 2611